# Development of a competency framework for quality improvement in family medicine: A qualitative study

*Original Research*

# Development of a Competency Framework for Quality Improvement in Family Medicine: A Qualitative Study

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***Objective:*** *The aim of this study was to develop a comprehensive framework of quality improvement competencies for use in continuing professional development (CPD) and continuing medical education (CME) for European general practice/family medicine physicians (GPs/FDs).*

***Methods:*** *The study was carried out in three phases: literature review, consensus development panels, and Delphi technique. An initial competencies framework was developed from an extensive literature review focusing on literature in English from 2000 to 2011 and addressing quality improvement competencies for general practitioners in continuous education programs. Two rounds of reviews by consensus development panels were undertaken to evaluate and make changes to the initial draft competency framework. Then two rounds of Delphi surveys were carried out in an effort to reach consensus on the domains and competencies included in the framework. Our goal was for 90% to 100% consensus. Both surveys were presented through SurveyMonkey, an online survey service, and sent by e-mail to members of the European Association for Quality and Patient Safety in General Practice/Family Medicine (EQuiP), a network organization of Wonca Europe.*

***Results:*** *The Quality Improvement Competencies Framework was developed. It consists of a list of 35 competencies organized into the following domains: Patient Care & Safety, Effectiveness & Efficiency, Equity & Ethical Practice, Methods & Tools, Leadership & Management, and Continuing Professional Education.*

***Conclusion:*** *We believe that the framework can serve as a useful tool for identifying gaps in knowledge and skills and guiding the development of CPD and CME curricula for GPs/FDs not only in Europe but also in other regions, including the United States and Canada, on the assumption that many of the core tasks of quality improvement would be relevant across multiple contexts.*

***Key Words:*** *quality improvement, competencies, family medicine, qualitative study, continuing professional development*

## Introduction

Modern medicine recognizes that the outcomes of clinical care depend not only on how doctors put their clinical knowledge and training into practice, but also their skills such as dealing with the continuous flow of new information and medical evidence, and effectively managing available resources.[1] There is also growing evidence that quality of

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care is, to a large extent, determined by the organization or system in which patient care is delivered.[2] The organizational context of care delivery may facilitate or inhibit efforts to improve practice.[3] This means that family doctors of today need to be able to reflect on the organizational systems in which they deliver care and, as needed, effectively participate in changing those systems to improve the quality of that care.[4] At the same time, doctors face increasing demands, as a consequence of the complex expectations of patients,[5] developments in science and technology, and limitations within health care systems.[6]

This perspective on the determinants of the quality of care has important consequences for medical education programs. Among other things, it means that doctors need training in the competencies required for quality improvement (QI), which we define as "the combined and unceasing efforts of healthcare professionals, patients and their families, researchers, payers, planners and educators to make changes that will lead to better patient outcomes, better system performance and better professional development."[7] Attempts to address the need for physician training in QI have, however, been uneven. A recent European study on teaching QI[8] showed many differences in QI curricula between European countries and different organizations within individual countries. We believe this is attributable, in part, to the absence of a widely accepted model describing the competencies required of physicians if they are to fully participate in quality improvement.

Competency models can enhance educational initiatives in multiple ways. A competency-based curriculum focuses attention on the outcomes of the instruction and how it improves the learner and the learners' work rather than focusing purely on acquiring knowledge (as is often the case with traditional instruction). A QI competency framework can provide the basis for a self-assessment tool to help individual GPs/FPs identify their training needs. Just as quality improvement requires health care professionals to be clear about outcomes,[9] general practitioners also need to have clear and focused guidelines for choosing their educational goals. A competency framework can also provide an organising structure to guide the development and evaluation of educational programs.[10] Teachers and trainers who develop and provide continuing professional development (CPD) programs could, for example, use the framework to identify and target important QI competencies. There are several organizations that are interested in QI curricula for physicians or other clinicians, not only in Europe but also in North America. These include the American Medical Group Association (AMGA), American Academy of Family Physicians, and Accreditation Association for Ambulatory Health Care. We believe that a QI competency framework can be a valuable resource to these organizations as well in the process of constructing their own curricula.

Despite the potential of a QI competency model to enhance doctor education, our review of the literature found that no comprehensive models currently exist. We did find several typologies incorporating elements of QI in health care that have been developed in the past 20 years. Some of them have served as a basis for developing QI curricula at different levels of education. For example, a model from the United States[11] identified 7 major aspects of quality of care—patient safety, effectiveness, patient centeredness, timeliness, efficiency, and equity—and these were incorporated into medical curricula for QI. The Canadian educational framework for medical students (CanMeds), which was developed primarily for specialty residents and then adopted for undergraduate students, includes 6 categories, none of which addresses QI directly: medical expert, communicator, collaborator, manager, health advocate, scholar, and professional.[12] However, some mention of QI competencies is found in the competencies comprising these categories. For example, "Participate in systemic quality process evaluation and improvement, such as patient safety initiatives" is included under "manager." In the field of continuous medical education (CME), Greiner and co-authors[12] defined 5 core competencies for health professionals: providing patient-centered care, working in interprofessional teams, employing evidence-based practice, applying quality improvement, and utilizing informatics. While including more information about QI competencies than CanMeds, Greiner et al fail to recognize competencies related to ethics and professionalism. The Bellagio model[13] put forward 9 essential features for delivery of effective chronic care: leadership, public trust (accountability and transparency), population-oriented management, vertical and horizontal integration, networking of professionals, infrastructure, payment mix, standardized measurement, and an active program of change.[13] This model provides a comprehensive competency model for chronic care of patients and cannot serve as a comprehensive competency framework for QI in general. Finally, there are the competencies for practicing physicians developed by the American Board of Medical Specialties (ABMS): patient care, medical knowledge, interpersonal and communication skills, professionalism, system-based practice, and practice-based learning and improvement.[14] The same competencies were also adopted for undergraduate students.[15] These frameworks form the basis of training for the majority of medical learners in the Western world[16] but cannot serve as comprehensive QI models as they do not address several areas that are essential to QI, such as research tools, leadership, and management.

In the absence of an existing model, we aimed to develop a comprehensive list of QI competencies for use in planning and evaluating CME programs for European general practitioners (GPs) and family doctors (FDs). We sought to achieve this outcome by developing consensus among a group of QI experts on the key competencies required for


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family doctors in Europe to assure high-quality care and to develop QI processes.[17,18] Although our focus was primary care physicians in Europe, we anticipated that this list would also be useful to CME planners in other regions, including the United States and Canada, on the assumption that many of the core tasks of QI would be relevant across multiple contexts and health care systems.

## Methods

A descriptive study was carried out in three consecutive phases: literature review, consensus development, and implementation of a Delphi process. Each subsequent phase was informed by and built upon the preceding phase.

### *Literature Review*

To create an initial list of QI competencies, four databases—PubMed, Cochrane Library, EMBASE, and Google Scholar—were searched as part of an extensive literature review. The search was limited to publications published from 2000 to 2011 that were written in English and included an abstract. The search strategy employed the following key words: continuing/continuous medical education; continuing/continuous professional development; quality improvement competencies; quality improvement; quality improvement curriculum; teaching quality improvement; general practitioner/family practice/general physician; general practitioners/family physicians and quality improvement competencies; and quality improvement and medical education. In addition, relevant quality improvement and general practice association Web sites were reviewed for descriptions of QI competencies and related literature.

Following the initial search, two of the authors (KC and AP) independently screened the titles and abstracts. They found 362 relevant citations. The citations were further narrowed by excluding articles that related to undergraduate education, residency programs, and non–general practice specialities. A final total of 35 citations was included.

We then reviewed the full text of the studies for possible competencies relevant to both family medicine and quality improvement. For the purposes of our study, *competency* was defined as a synthesis of knowledge, skills, and attitudes that enables family physicians/general practitioners to deliver high quality care.[19,20] A preliminary list of competencies was compiled and duplicate concepts merged by the same reviewers (KC and AP). Any disagreements among reviewers were resolved through discussion. The competencies were then organized into domains synthesized from the sources or based on existing frameworks for general practice and quality improvement.[10,11,13,17]

### *Consensus Development Panels*

Two rounds of consensus development panels were undertaken to evaluate and make changes to the initial draft competency framework. Consensus development panels are a qualitative method for obtaining agreement in areas of uncertainty or where there is a lack of definitive information.[21,22] Furthermore, consensus development panels help bring professionals together to directly comment and develop tools and techniques.[22]

The first panel for the QI framework took place during a European Association for Quality in General Practice (EQuiP) Invitational Conference in 2011. EQuiP is one of the Wonca Europe network organizations comprising 43 representatives officially designated by national colleges/associations of family doctors from European countries. The vast majority of representatives are practicing family physicians/general practitioners with a special interest and experience in quality improvement activities in primary health care. They are also involved in teaching QI at different educational levels (undergraduate, postgraduate, and CME). The authors offered a workshop entitled "Competence-Based Education in Quality Improvement for General Practitioners/Family Doctors in Europe" at this conference. Fifteen EQuiP members chose to participate, representing 6 countries (Ireland, Austria, Slovenia, Hungary, Belgium, and Poland). Seven of the 15 (47.0%) were men. During this activity, participants were given a presentation defining the scope of the project and relevant definitions such as quality improvement, competence, and family practice. They were then directed to individually review the draft list of domains and their associated competencies. They were asked to mark each competency according to its relevance for inclusion in the model, suggest possible changes in the competency statement, and suggest possible changes in the appropriate domain. After the reviewers individually evaluated the items, they convened in 3 groups to continue work on the list. The results from these groups were pooled after the conference to create an amended framework.

A second consensus panel review was conducted via a questionnaire as a means of reaching agreement on the changes introduced after the first round. The amended competencies were e-mailed to the 15 first-round review participants. Each expert was asked to review the list and to invite a colleague/expert in family medicine and quality improvement from their country to also review the list. The new questionnaire asked respondents to evaluate the competencies and the domains used to organize the competencies. Responses were received from 6 of the first-round reviewers and 6 of their colleagues, for a total of 12 reviewers. These participants were from Ireland, Austria, Slovenia, Poland, Belgium, and Hungary. Based on our analysis of the survey results, the 6 domains created during the conference were


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retained, with minor edits. Individual competencies were edited and reorganized based on the majority recommendation of the experts.

As an additional quality check, we recruited an expert who is not a member of EQuiP, a general practice expert from Maastricht University Medical Centre, Department of Integrated Care. She evaluated the framework and discussed her observations in a one-to-one meeting, recommending small edits to the competency list and the addition of "Develop and monitor individualized health care plan with the patient" under the Patient Care & Safety domain.

### *Delphi Survey*

Having refined the framework, a 2-round Delphi survey was conducted to validate and establish consensus on a final framework. The Delphi method helped us to create an environment that allowed for partial anonymity, iterations of the survey, and controlled feedback.[23] A traditional Delphi process begins with a survey gathering opinions from participants followed by 2 or more rounds to reach consensus.[24] The number of survey rounds, size of expert pool, and degree of consensus required are defined by the researcher, but typically 2 or more rounds of surveying must be conducted.[25] Since we had already completed the consensus development panels, we chose to have 2 rounds of Delphi surveys in an effort to finalize and obtain a high level of consensus on the competency framework. A minimum of 10 respondents was sought in each round. Respondents were members of EQuiP (some of whom had the opportunity to contribute to the previous qualitative expert panel review). It is suggested that 10 to 15 Delphi participants are sufficient if their background is homogeneous.[22] We decided that competencies receiving scores of greater than 90% would be considered to have achieved consensus.

Both rounds of Delphi surveys were presented through SurveyMonkey, an online survey service, and sent by e-mail to 33 active EQuiP members inviting them to participate in the study and complete the survey. The first Delphi survey sought a simple "yes/no/with changes" response on the inclusion of each competency domain area. Participants were then asked to respond "yes/no/with changes" on the inclusion and grouping of each competency. Altogether, the first-round questionnaire consisted of 44 questions. In addition, space was provided to add other competencies that respondents considered suitable for family physician practice. The respondents could also submit arguments for or against the proposed competencies (by supporting their opinion with literature references). Following 2 reminders, 13 responses were received. Items with less than 90% consensus were edited to bring them closer in line with the observations of the respondents. The second Delphi survey contained 3 questions and sought a simple "yes/no" response approving the edits made in the previous round and the framework as a whole.

This study involved no patients or human material. Participants in the consensus panel and Delphi survey were informed of the purpose of this study and were given the opportunity to self-select their participation. It was conducted in compliance with the Helsinki Declaration.

## Results

Based on our literature review, 55 competencies were identified and organized into 5 domains: Patient Care & Safety, Ethics, Research & Evaluation, Leadership & Management, and Education & Continuing Education. As a result of the first phase of the consensus development process, the list was narrowed to 37 competencies. A new domain was added (Effectiveness & Efficiency), increasing the total to 6, and 2 domains were reformulated to be more comprehensive: Ethics was changed into Equity & Ethical Practice and Research & Evaluation was amended to Methods & Tools. Based on the results of the workshop and responses to the questionnaire that followed, the list was reduced to 35 competencies organized into 6 domains.

In the first Delphi round, 13 participants contributed. They reached 100% consensus on all but one competency (which obtained 90% consensus): "Respect patients' personal rights." Participants reached 100% consensus on 5 of the 6 domain areas. One individual commented that Leadership & Management could be a subsection of Effectiveness & Efficiency.

After revision, the framework was presented for a second and final Delphi round. We reached 100% consensus on the domain areas with 1 objection to the final framework (TABLE 1). Under the Equity & Ethical Practice domain, 1 respondent still disagreed with inclusion of "Respect patients' personal rights" as a separate competence and suggested merging it with "Respect patient autonomy," which might be considered to represent a similar concept. Since there was only 1 objection and 12 approvals, resulting in 92% agreement, we did not make the change. As we anticipated, 2 rounds yielded a high level of consensus, and no further Delphi rounds were conducted. Since during the second round the respondents proposed no new competencies, we concluded that saturation and consensus had been achieved. A circular structure for displaying the domains was adopted to emphasize the importance of integrating all areas of competency into a family practice (FIGURE 1).

## Discussion

The framework that emerged from this process is a comprehensive and integrated tool embracing not only specific competencies related to patient care provided in a health care


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TABLE 1. Competency Framework in Quality Improvement for General Practitioners/Family Doctors in Europe[a]

| Patient Care & Safety | Equity & Ethical Practice | Effectiveness & Efficiency | Methods & Tools | Continuing Professional Development | Leadership & Management |
|---|---|---|---|---|---|
| Practice patient-centered medicine by understanding the patient's experience and then reflecting on care. | Analyze the equity of practice performance and take action when necessary. | Standardize service delivery where possible to improve timeliness of primary care. | Understand and use the Plan-Do-Check-Act quality cycle. | Understand and use self-assessment. | Work in partnership with all stakeholders of the practice population. |
| Deal effectively with critical incidents and medical error. | Respect patient autonomy. | Measure practice performance and competence according to national and EU standards. | Understand change management and the consequences of change in terms of the Plan-Do-Check-Act cycle. | Develop and maintain individual continuing learning. | Work as an interprofessional team in a practice, in a network, and in the community. |
| Practice infection prevention and control. | Respect patients' personal rights. | Implement evidence-based medicine guidelines. | Measure performance and use data for improvement. | Pursue systematic practice-based learning and improvement CPD. | Understand how to take or delegate leadership for quality improvement. |
| Practice medication safety. | Manage all patient data safely and ethically. | Ensure data quality. | Understand and use measurements for accountability. | Understand the gap between prevailing/current performance and local/national accepted standards. | Negotiate for change, with staff, and with clients. |
| Apply a systems-based organizational approach to patient safety in the practice. | Understand intercultural patient concerns. | Managing resources efficiently in order to increase the efficiency of service delivery. | Use benchmarking feedback and audit techniques to measure and improve quality in the context of your practice or region. | Engage in interprofessional learning where appropriate. | |
| Incorporate effective communication to improve patient safety and involvement. | Recognize, understand, and address ethical dilemmas. | Promote methods of continuous improvement. | | | |
| Provide appropriate disclosure to patients when errors occur. | Understand social contexts in general practice. | Standardise quality improvement efforts to make the process more efficient and sustainable. | | | |
| Develop and monitor individualized health care plan with the patient. | Prioritize quality improvement activity and understand its effect on patient care. | | | | |

[a]The QI Competencies are intended to support practicing general practitioners/family doctors in leadership roles who intend to move towards introducing Quality Improvement projects.


FIGURE 1. Competency Framework in Quality Improvement for Family Doctors in Europe

system, but also a range of cross-cutting, interdisciplinary, and social-interpersonal competencies such as negotiating for change, interprofessional teamwork, and social networking. This framework describes a role for GPs/FDs that is focused not only on clinical care of patients but also on organizational, ethical, and patient safety issues. The QI competencies identified show that GPs/FDs need to be able to adopt multiple roles when managing their patients and adapt to the requirements of the patient-centered medical care. This is consistent with the key features of family medicine: holistic approach, comprehensive approach, person-centered care, and community approach.[23]

This study produced a framework that is simultaneously more comprehensive and more focused than its predecessors. Prior studies of QI competencies needed by GPs/FDs to meet the challenges of increasingly complex modern medical practice addressed more limited and specific areas such as ethics[26] or research tools and instruments.[27–29] Our model covers the full range of QI competencies needed by FDs. In addition, the domains of our model were developed based on current frameworks for planning QI activities and educational programs. Combining the pivotal areas from multiple models into 6 domains allowed a new organization of the key competencies needed for general practitioners and the exclusion of extraneous competencies more suited to administrators, managers, or other more specific specialities.

Ours is a transdisciplinary framework that can be used to inform efforts to help practitioners respond effectively to the complex medical care environment in which they work. As the gatekeepers to other specialists and frequent negotiators of health management for patients with chronic illnesses, GPs/FDs require a holistic view of quality improvement and their place in the medical system.[30] GPs/FDs are often the first and most frequently visited physicians, particularly in Europe. Therefore, systemic improvements must start with them. By actively incorporating quality improvement into their practices, family doctors can improve the systems in which patient care is delivered.[2]

Although qualitative approaches like consensus-building panels and the Delphi technique are very useful in identifying key competences, these approaches preclude firm conclusions and have limited representativeness.[31] It should be noted that some researchers regard Delphi and other consensus-building techniques as methods of "last resort," as they rely on the opinions of a group rather than direct scientific evidence.[32] Moreover, consensus building based on EQuiP participants may bias or restrict the guidelines to particular regions or types of general practice/family medicine. There is also the risk that in our desire to obtain consensus, we may not give enough attention to the dissenting voice. Despite these limitations, we believe our QI competency framework will prove to be a useful tool in the evaluation and assessment of educational needs related to QI.

Going forward, the authors intend to continue refining and validating the framework. Also planned is development of an online self-assessment tool that will be accessible to European family physicians/general practitioners. The tool will include all competences and domains from this study and will collect data about physicians' self-perceived competences. These data will be helpful for examining the criterion, content and construct validity of the developed list of competencies.[32–34] The tool will also be accessible for GP teachers of QI and policy makers to bring other perspectives into the study and stimulate discussion about educational needs.

Our study shows that quality improvement activities in general practitioners/family doctors' practices constitute a complex and multidimensional aspect of clinical practice. The QI competency framework provides an important resource for GPs/FDs, teachers, and researchers. Application and evaluation of the framework are the next steps in our ongoing efforts to identify competency gaps in QI and formulate comprehensive and effective CPD curricula for general practice/family medicine.

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## Lessons for Practice

- Several frameworks for quality improvement in health care have been developed in the past 20 years but they do not comprehensively and specifically cover primary care.
- This comprehensive competency framework for QI in general practice can serve as a useful tool in identifying gaps in knowledge and shaping CPD curricula for GPs/FDs.

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